The Knowledge Bank at The Ohio State University

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OUR WELDING COURSE

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WELDING ENGINEERING is a new and rapidly growing profession in industry, one for which industry has carried the burden of training all its men, because there were no college trained engineers available. Realizing that there is this healthy demand for college trained Welding Engineers, Ohio State University has added a Welding Engineering Curriculum to the Department of Industrial Engineering. Students are now being enrolled in this new course of study and within a few years they will graduate as the first college trained Welding Engineers.

In the past when industry needed a Welding Engineer, it would take one of the engineering college graduates in Mechanical, Industrial, Civil or Metallurgical Engineering and teach him the welding he was required to know in that particular industry. This was necessarily a very slow process and one which was restricted and narrow in its training. That is to say; a man trained by a manufacturer of automobile frames, or rotary bits used to drill oil wells, would be absolutely lost in a ship yard where ocean going vessels were built and repaired.

Most of the welding processes we use today were discovered before the beginning of the Twentieth Century but remained comparatively unknown until the urgent requirements of the world war unveiled their possibilities as repair tools. Repairs were made in place, saving time and avoiding dismantling and costly replacements.

For a period of years after the war, welding was known chiefly as a repair tool, but finally the engineers learned that welding, in addition to being a first class repair tool, could be used advantageously for permanently joining the connecting parts of major structures. During this evolution welding grew from a handy tool for the repair of defective steel castings to the means now used to connect rolled steel parts to replace castings. Welding developed from an easy way of repairing boiler tube sheets to a method by which the best quality of important pressure vessels are constructed. From its early use as a convenient way to plug misplaced holes, welding has risen until it is now playing a major part in the fabrication and erection of steel bridges and buildings. Its valuable features have made possible the development of original types of design which accomplish increased economy of material and improvement in appearance. Today welding is used to fabricate and repair electric locomotives, automobiles, ocean going ships, bridges, tunnels, structural buildings, metal furniture, boilers, machinery of all kinds, pipelines, excavating equipment, tanks, airplanes, etc.

Only last summer the James F. Lincoln Welding Foundation awarded $200,000 in prizes to 382 authors of papers on electric welding designs. It is conservatively estimated by the Jury, which selected the winning papers, that the designs submitted to them claimed a total savings of $1,600,000,000.

Because it is our belief that none of the existing engineering curricula require the student to study all the courses a Welding Engineer should have, we have created the new curriculum by selecting those courses (now being taught by the various departments in the College of Engineering) which the Welding Engineer should have, and adding to that very general background four new welding courses. Two of these courses will be on the Theory and Applications of Welding and the other two will be on Welding Design.

At this point it is interesting to note that two yearly Scholarships have been made available with stipends of $250 each. Near the end of each school year one junior and one sophomore will be selected as the most capable men of their respective classes in Welding Engineering. These scholarships are to be known as The Arc Welding Scholarships in Welding Engineering.

It has been thought by some, that the lack of trained welding operators was the limiting factor of the Welding Industry. This may be the governing factor in a few isolated cases, but it is our opinion that the factor which is limiting the use of welding today is the shortage of engineers trained to design, supervise, and inspect welding intelligently.

One might ask this question: Just what will be the duties of a Welding Engineer and where will he live after graduation? I will suggest an answer to the first part of the question by stating that to obtain first class welding it is essential that there be intelligent design, sound welding procedure, adequate supervision, strict inspection by the company's own inspectors while the work is being done, and a chain of responsibility from the chief engineer to the welding operator. The latter part of the question I believe can be answered by saying that the Welding Engineer will have a choice of employment in more geographic localities than most other engineers. He may work for one of the large manufacturing plants in a metropolis like New York or Chicago, he may choose to work for a pipeline company on the western prairies, he may prefer working for a ship yard along the sea coast, or he may go in one of any number of other directions.